REMARKS

Claims 1-26 are pending in the instant patent application. Claims 25 and 26 have been amended. No new matter has been added.

CLAIM OBJECTIONS

Claim language in Claims 25 and 26 was objected to by the present Rejection. These claims have been amended to clarify the objected to language. In light of these amendments, Applicant respectfully requests that the objections be withdrawn.

CLAIM REJECTIONS

35 U.S.C. §102 Rejections

Claims 1, 2, 23 and 24

Claims 1, 2, 23, and 24 are rejected under 35 U.S.C. §102(b), as being anticipated by prior art Figure 3. Applicant has reviewed the cited reference, and submits that embodiments of the present invention as recited in Claims 1, 2, 23 and 24 are neither anticipated nor rendered obvious by prior art Figure 3.

The Examiner is respectfully directed to independent Claim 1, which recites that an embodiment of the present invention is directed to a fan speed controller comprising, "... a drive stage circuit coupled to said pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal." Independent Claim 23 recites similar limitations to those of Claim 1. Claim 2 depends from Claim 1 and recites further

limitations of the claimed invention. Claim 24 depends from Claim 23 and recites further limitations of the claimed invention.

Applicant respectfully submits that prior art Figure 3 does not teach or suggest, either expressly or inherently, "...a drive stage circuit coupled to said pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal," as recited in Claim 1. Prior art Figure 3 instead shows an example of an inefficient linear, non-switching means for achieving a linear voltage from a pulse width modulated signal, which is entirely different from switch mode voltage conversion as recited in Claim 1. Low pass filtering a pulse width modulated signal (as shown in prior art Figure 3) does create a linear voltage, but the means shown in prior art Figure 3 is a steady state linear conversion that does no "switching" in response to the on/off pulses supplied by the pulse width modulator. Because Claims 1 and 23 recite a drive stage circuit... for switch mode converting a supply voltage into a linear voltage for driving a fan, and prior art Figure 3 does not show a switch mode converter, Claims 1 and 23 are not anticipated by prior art Figure 3.

Consequently, the prior art Figure 3 reference does not anticipate or render obvious the embodiments of the Applicant's invention as recited in Claims 1 and 23, and as such Applicant submits that Claims 1 and 23 overcome the rejection under 35 U.S.C. 102(b). Accordingly, the Applicant also respectfully submits that prior art Figure 3 fails to anticipate or render obvious the Applicant's invention as set forth in Claim 2 dependent on Claim 1, or Claim 24 dependent on Claim 23, and that Claims 2 and 24 overcome the rejection under 35 U.S.C. 102(b) through dependency on allowable base claims.

Claims 1, 2, 4, 23, 24 and 26

Claims 1, 2, 4, 23, 24 and 26 are rejected under 35 U.S.C. §102(e), as being anticipated by Vyssotski et al. U.S. Patent No. 6,650,074 (hereinafter Vyssotski). Applicant has reviewed the cited reference, and submits that embodiments of the present invention as recited in Claims 1, 2, 4, 23, 24, and 26 are neither anticipated nor rendered obvious by Vyssotski.

The Examiner is respectfully directed to independent Claim 1, which recites that an embodiment of the present invention is directed to a fan speed controller comprising, "... a drive stage circuit coupled to said pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal." Independent Claim 23 recites similar limitations to those of Claim 1. Claims 2 and 4 depend from Claim 1 and recite further limitations of the claimed invention. Claims 24 and 26 depend from Claim 23 and recite further limitations of the claimed invention.

Applicant respectfully submits that Vyssotski does not teach or suggest, either expressly or inherently, "...switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal," as is recited in Claims 1. Applicant submits that Vyssotski, teaches a non-switching method of converting a pulse width modulated signal into a linear voltage, see e.g., item 60 of Figure 3, item 60 of Figure 5, and col. 7, and lines 5-42 of Vyssotski, which all teach a low pass filter of similar construction to the low pass filter of prior art Figure 3. Thus, Vyssotski has the same deficiency noted with prior art Figure 3, in that Vyssotski teaches using a low pass filter to generate a linear voltage, rather than switch mode converting a supply voltage into a linear

voltage, as is recited in Claims 1 and 23. Because Claims 1 and 23 recite a drive stage circuit... for switch mode converting a supply voltage into a linear voltage for driving a fan, and prior art Vyssotski does not show a switch mode converter, Claims 1 and 23 are not anticipated by Vyssotski.

Consequently, Vyssotski does not anticipate or render obvious, the embodiments of the Applicant's invention as recited in Claims 1 and 23, and as such Applicant submits Claims 1 and 23 overcome the rejection under 35 U.S.C. 102(e). Accordingly, the Applicant also respectfully submits that Vyssotski fails to anticipate or render obvious the Applicant's invention as set forth in Claims 2 and 4 dependent on Claim 1, or Claims 24 and 26 dependent on Claim 23, and that Claims 2, 4, 24 and 26 overcome the rejection under 35 U.S.C. 102(e) through dependency on allowable base claims.

35 U.S.C. §103 Rejections

Claims 5-10, 12-14 and 16-22

Claims 5-10, 12-14, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vyssotski in view of Cheng et al. U.S. Patent No. 6,853,569 (hereinafter Cheng). Applicant has reviewed the cited references, and respectfully submits that the embodiments of the present invention as recited in Claims 5-10, 12-14 and 16-22 are neither anticipated nor rendered obvious by Vyssotski in view of Cheng, either alone or in combination.

The Examiner is respectfully directed to independent Claim 8, which recites that an embodiment of the present invention is directed to a fan speed controller with a drive structure, said drive structure comprising:

... a first transistor having a gate for receiving said pulse width modulation signal and a source coupled to a first potential;

a current shunting element having a first terminal coupled to a drain of said first transistor and a second terminal coupled to a second potential;

a capacitor having a first terminal coupled to said second terminal of said current shunting element; and

an inductor having a first terminal coupled to a second terminal of said current shunting element and to said drain of said first transistor.

Claim 5 (which depends from Claim 1) recites similar limitations to those of Claim 8. Claims 9, 10, 12-14 and 16-22 depend from Claim 8 and recite further limitations of the claimed invention. Claims 6 - 7 depend from dependent Claim 5 and recite further limitations of the claimed invention.

With respect to Claims 5-7, Applicant disagrees that Vyssotski teaches or suggests a drive stage for switch mode converting a supply voltage into a linear voltage for driving a fan. As described above in conjunction with Claim 1, Applicant instead submits that Vyssotski teaches away from the present invention by teaching a linear, non-switching method of converting a supply voltage into a linear voltage instead of the switch mode converting recited in Claim 1 from which Claims 5-7 depend.

With respect to Claims 5 and 8, Applicant agrees with the rejection's statement that, "...Vyssotski does not disclose the drive structure of the drive stage as disclose in claims 5 and 8," see page 4, section 6 of the rejection. Applicant further submits that Cheng does not cure the deficiency noted with Vyssotski in that that Cheng does not teach or suggest, either expressly or inherently, the drive stage structure as recited in Claims 5 and 8. Instead, the circuit disclosed in Cheng differs from the present invention as claimed by requiring many more components to implement. The drive stage structure as recited in Claims 5 and 8 of the present invention

requires one transistor, one current shunting element, one capacitor, and one inductor. Whereas, the minimum number of components required to implement the circuit in Cheng includes four transistors, four current shunting elements (diodes), three capacitors, and one inductor. See e.g., Figures 1, 2, 3, and 4 and col. 3, line 50 - 67.

Further, Applicant submits that Cheng teaches away from the present invention, as recited in Claims 5 and 8, by teaching a markedly different connection sequence of the components. In Cheng, a series capacitor 13 and inductor 14 are connected across two series transistors (4, 6) and two series shunting elements (8, 10); see e.g., Figure 1 and col. 3, lines 62 – 63. However, as recited in Claims 5 and 8 of the present invention, a series capacitor and inductor are only connected across a single shunt and not across any transistors. The circuits of Cheng and the present invention as claimed share some similar components, but they comprise entirely different structures. Therefore, the embodiments of the Applicant's invention set forth in Claims 8 and 5 are neither anticipated nor rendered obvious by Vyssotski or Cheng, either alone or in combination.

Additionally, Applicant submits that it would not be obvious to utilize the DC-to-DC converter of Cheng in conjunction with the circuit of Vyssotski to achieve the circuit recited in Claims 5 and 8 of the present invention, for at least two reasons. First, there is no suggestion in either reference for a combination of the cited art. Second, the references take mutually exclusive paths and reach different solutions to a similar problem of converting a pulse width modulated voltage to a linear voltage. Since the Vyssotski and Cheng references teach away from one another, there is no motivation or suggestion to combine them in the claimed fashion.

Consequently, the combination of Vyssotski in view of Cheng does not anticipate or render obvious, the embodiments of the Applicant's invention as recited in Claims 8 and 5, and as such Claims 8 and 5 overcome the rejection under 35 U.S.C. 103(a). Accordingly, the Applicant also respectfully submits that the combination of Vyssotski in view of Cheng fails to anticipate or render obvious the Applicant's invention as set forth in Claims 9, 10, 12-14 and 16-22 dependent on Claim 8, or Claims 6 - 7 dependent on Claim 5, and that Claims 6, 7, 9, 10, 12-14, and 16-22 overcome the rejection under 35 U.S.C. 103(a) through dependency on allowable base claims.

Claims 3 and 25

Claims 3 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vyssotski in view of Saito et al. JP57-097397 (hereinafter Saito). Applicant has reviewed the cited references, and respectfully submits that the embodiments of the present invention as recited in Claims 3 and 25 are neither anticipated nor rendered obvious by Vyssotski in view of Saito, either alone or in combination.

The Examiner is respectfully directed to independent Claim 1, which recites that an embodiment of the present invention is directed to a fan speed controller comprising, "... a drive stage circuit coupled to said pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal." Independent Claim 23 recites similar limitations to those of Claim 1. Claim 3 depends from Claim 1 and recites further limitations of the claimed invention. Claim 25 depends from Claim 23 and recites further limitations of the claimed invention.

As indicated above, with respect to Claims 1 and 5, Applicant submits that Vyssotski does not teach or suggest switch mode converting a supply voltage to linear voltage. Instead, Vyssotski is believed to teach away from the present invention by teaching a linear non-switching means of converting a pulse-width modulated voltage to a linear voltage through the use of a low pass filter. Applicant submits that Saito does not cure the deficiencies noted above with regard to Vyssotski. In so far as the Applicant can discern, Saito is silent with regard to a drive circuit... for switch mode converting a supply voltage into a linear voltage for driving a fan, as recited in Claims 1 and 23.

Moreover, as understood by Applicant, Applicant can find no motivation in the cited Saito reference for making the modification to the circuit of Vyssotski suggested by the rejection, as the circuit of Vyssotski is believed to teach away from the invention as recited in Claims 1 and 23, and the suggested combination does not cure this deficiency. Applicant invites the Examiner to identify such a motivation within the text of either reference. In the event that Saito is again used as a basis for rejection, Applicant also requests that the Examiner provide a complete English language translation of Saito so that its teachings can be fully understood and appreciated by both the Examiner and the Applicant.

Consequently, the combination of Vyssotski in view of Saito does not anticipate or render obvious, the embodiments of the Applicant's invention as recited in Claims 1 and 23, and as such Claims 1 and 23 overcome the rejection under 35 U.S.C. 103(a). Accordingly, the Applicant also respectfully submits that the combination of Vyssotski in view of Saito fails to anticipate or render obvious the Applicant's invention as set forth in Claim 3 dependent on Claim 1, or Claim

25 dependent on Claim 23, and that Claims 3 and 25 overcome the rejection under 35 U.S.C. 103(a) through dependency on allowable base claims.

Claims 11 and 15

Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vyssotski in view of Cheng (as applied to Claim 8 above) and further in view of Saito. Applicant has reviewed the cited references, and respectfully submits that the embodiments of the present invention as recited in Claims 11 and 15 are neither anticipated nor rendered obvious by Vyssotski, Chang, or Saito, either alone or in combination.

The Examiner is respectfully directed to independent Claim 8, shown above. Claims 11 and 15 depend from Claim 8 and recite further limitations to the claimed invention.

Saito apparently discloses a temperature sensor associated with a motor; see e.g. the Abstract and Constitution of Saito. However, as understood by Applicant, Saito does not cure the deficiencies of Vyssotski and Chang discussed above with regard to the circuit arrangement recited in Claim 8. In fact, so far as Applicant can discern, Saito appears to be silent with respect to the circuit arrangement recited in Claim 8.

Moreover, Applicant can find no motivation in the cited Saito reference for making the suggested modification to the circuits of Vyssotski and Cheng, which, as described above, appear to teach away from one another (as described above). Applicant invites the Examiner to identify such a motivation within the text of the references if one exists. In the event that Saito is again used as a basis for rejection, Applicant also requests that the Examiner provide a complete

English language translation of Saito so that its teachings can be fully understood and appreciated by both the Examiner and the Applicant.

Consequently, the combination of Vyssotski, Cheng, and Saito does not anticipate or render obvious, the embodiments of the Applicant's invention as recited in Claim 8, and as such Claims 8 overcomes the rejection under 35 U.S.C. 103(a). Accordingly, the Applicant also respectfully submits that the combination of Vyssotski, Cheng, and Saito fails to anticipate or render obvious the embodiments of the Applicant's invention as set forth in Claim 11 and 15 dependent on Claim 8, and that Claims 11 and 15 overcome the rejection under 35 U.S.C. 103(a) through dependency on allowable base claims.

SUMMARY

In light of the above-listed amendments and remarks, Applicant respectfully requests allowance of the pending Claims. The Examiner is urged to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,
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Dated: 21 Dec, 2005

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